

Investigation of the Electoral Register as a possible replacement source of household statistics

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1. Summary of main findings

This report contains a summary of analysis carried out by GROS to compare the number of households recorded in Council Tax systems, and households where one or more people are registered to vote and included on the Electoral Register.

Overall, there is a very strong positive relationship between the number of households included in Council Tax systems and the Electoral Register, but where there are differences, the number of households which contain at least one elector on the Electoral Register tends to be lower. There appear to be lower proportions of households included on the Electoral Register in urban areas, and in areas with more deprivation. There is also substantial variation in the proportion of households included on the Electoral Register within different local authority areas.

Please note that Electoral Registration Officers (EROs) send out Electoral Registration Forms to a list of addresses, which is very similar to the list of occupied dwellings used for Council Tax collection purposes.

Within this report, however, we have only considered those households from which a registration form was returned to an ERO. We refer to these as the number of households on the Electoral Register. This analysis does not include those addresses from where no form was returned. The number of households from the Electoral Register is therefore likely to be lower than the number than the number of occupied dwellings.

2. Purpose

GROS is investigating the Electoral Register as a possible replacement source of household statistics in light of the proposed abolition of Council Tax. This paper outlines how data from the Electoral Register can be used to estimate households.

This paper will also include some analysis of the Electoral Register compared with currently published household estimates, as well as a mention of possible further investigations.

3. Background

The GROS currently publishes estimates of households and dwellings, at local authority and data zone level.

The new Scottish administration has consulted on proposals to abolish Council Tax and replace it with a Local Income Tax within the next three years (<http://www.scotland.gov.uk/Publications/2008/03/11131725/0>). A side-effect of this would be that we would lose the source of most of our household statistics. As a result, we are now working to identify replacement household statistics, which can be put into place by the time that our existing data sources will be lost. GROS will investigate the feasibility of using these sources and their quality and coverage. Where possible, this will include comparing them to current small-area household estimates and dwelling counts. The Electoral Register is one of the possible data sources which we are examining.

4. Results

The tables and maps referred to in this paper are shown in [Annex A](#). A description of the sources, methods and definitions used is shown in [Annex B](#).

4.1 Local authority area analysis

[Table 1](#) shows the numbers of households on the Electoral Register and the numbers of occupied dwellings as recorded in Council Tax systems in each local authority area in Scotland in 2007. [Map 1](#) shows the numbers of households on Electoral Register as a proportion of the number of occupied dwellings as recorded in Council Tax systems, for each local authority area in 2007. The map contains the same information as [Table 1](#) but it clearly shows those local authorities which have lowest coverage of households on the Electoral Register. [Annex B](#) provides more information on how households are estimated from the Electoral Register and how occupied dwellings are calculated from Council Tax systems.

This table and map illustrate some key points:

- In 2007, there were 2.15 million households on the Electoral Register and 2.34 million occupied dwellings as recorded in Council Tax systems in Scotland, a difference of 190,000. Across Scotland, the proportion of households on the Electoral Register is 0.92 of the number of occupied dwellings from Council Tax systems.

- In Orkney, the proportion of households on the Electoral Register compared with occupied dwellings from Council Tax systems is 0.97. This is the highest value for any local authority area in Scotland. The other island authorities and Fife also have relatively high proportions of households on the Electoral Register (all 0.96).
- Aberdeen City has the lowest proportion of households on the Electoral Register compared with occupied dwellings as recoded in Council Tax systems (0.79). More details about this are given below.
- The city authorities of Aberdeen City and City of Edinburgh have relatively low proportions of households on the Electoral Register (under 0.9), and the other city authorities are relatively low as well. Renfrewshire, Inverclyde and West Dunbartonshire also have low proportions of households on the Electoral Register - these three local authority areas are in the same area and share a number of similar social characteristics.

4.2 Data zone level analysis

Table 2 contains summary statistics which show the proportions of households on the Electoral Register compared with occupied dwellings from Council Tax systems for data zones in 28 of the 32 local authorities¹. In over 85 per cent of data zones, the proportions of households on the Electoral Register are between 0.8 and 1.0. There are a small number of data zones with extreme values - the lowest proportion is 0.28 and the highest is 4.71.

The lowest proportion can be found in a data zone in Aberdeen City (S01000116). There are a large number of data zones in Aberdeen City which have low proportions of households on the Electoral Register. The reasons for this will be explained in more detail in section 4.3.

In some data zones, there are more households on the Electoral Register compared with the number of occupied dwellings as recorded in Council Tax systems. The number of households on the Electoral Register is highest relative to the number of occupied dwellings from Council Tax systems in a data zone in Glasgow City (S01003319). In this data zone, the proportion of households on the Electoral Register is 4.71. Comparison with published household estimates for 2007 shows that there is a high percentage of vacant dwellings (85 per cent) in this data zone. There are three multi-storey buildings in the data zone which are due to be demolished shortly. These multi-storey buildings contain a large number of vacant flats. The Electoral Register contains details of people who are registered to vote at these addresses. This list is likely to have been compiled as part of the canvass of electors for the previous year, so the difference appears to be due to the different dates at which these data collections were carried out.

¹ This table does not include data zones in Clackmannanshire, East Renfrewshire, Fife and Highland, as there was not reliable information published on occupied dwellings at data zone level for these local authority areas.

Figure 1 is a scatter plot which shows the number of occupied dwellings as recorded in Council Tax systems (2007) and the number of households on the Electoral Register (2007) for each data zone in Scotland, where available. There is a fairly strong positive correlation between the numbers of households on the Electoral Register and the number of occupied dwellings from Council Tax systems - the Pearson's correlation coefficient between the two variables is 0.914. Where there is a difference between the two sources, there tends to be a higher number of households recorded on the Council Tax system than the Electoral Register for that data zone.

Table 3 shows how the proportions of households on the Electoral Register varies with occupied dwellings as recorded in Council Tax systems, by the Scottish Government's 6-fold Urban-rural classification. Towns and rural areas have high proportions of households on the Electoral Register (between 0.94 and 0.95), whilst large urban areas are less well covered – with a figure of 0.89. Annex B contains more information on the Scottish Government's 2006 6-fold Urban-Rural Classification.

Table 4 shows the proportions of households on the Electoral Register to occupied dwellings as recorded in Council Tax systems, by Scottish Index of Multiple Deprivation (SIMD) decile (2006). The relative number of households on the electoral register increases steadily with decreasing levels of deprivation. The figure for the most deprived areas is 0.87 compared with 0.95 for the least deprived areas. A suggested reason for this trend could be due to lower voter engagement in more deprived areas. Annex B contains more information on the Scottish Government 2006 Scottish Index of Multiple Deprivation.

Figure 2 is a histogram which shows the proportions of households on the Electoral Register to occupied dwellings as recorded in Council Tax systems for all data zones in Scotland. The histogram shows the distribution of these figures:

- In about two thirds of data zones in Scotland, the proportion of households on the Electoral Register compared with occupied dwellings from Council Tax systems is between 0.91 and 1.00.
- For over a quarter of data zones, the proportion of households on the Electoral Register is 0.90 or less; three per cent of data zones have proportions of 0.70 or less.
- Five per cent of data zones have more households on the Electoral Register than occupied dwellings from Council Tax systems. Only a small number of data zones (less than one per cent) have overcounts of greater than 10 per cent.

4.3 Variation within local authorities

Figure 3 consists of a separate histogram for each local authority area. Each histogram shows the distribution of households on the Electoral Register, as a

proportion of all occupied dwellings as recorded in Council Tax systems, for data zones in that local authority area. The charts illustrate the following points:

- In most local authority areas, the majority of data zones have proportions between 0.91 and 1.00. The city authorities of Aberdeen City, Dundee City and Edinburgh City have the lowest share of their data zones in this category.
- In Edinburgh City, Aberdeen City, West Dunbartonshire and Inverclyde, over 40 per cent of data zones have proportions of 0.90 or less.
- The island authorities, Midlothian and North Ayrshire, have the closest relationship between the number of households recorded on the Electoral Register and the Council Tax system. More than 90 per cent of data zones in each of these local authority areas have proportions of 0.90 or more.
- Aberdeen City has a much higher percentage of data zones with proportions of 0.70 or less (26 per cent) compared with Scotland as a whole² (three per cent of all data zones in the country). This will be discussed in more detail later in this section.
- There are more households in the Electoral Register compared with occupied dwellings from Council Tax systems in over 10 per cent of data zones in Dundee City, East Lothian, Aberdeen City, and South Lanarkshire.

More detailed case studies are provided below of data zones in specific local authorities.

- Edinburgh City has been chosen because it provides a good example of the kind of variation that can be seen in the figures, as well as possible explanations for the low figures.
- In Aberdeen City coverage is low on the Electoral Register, but the causes for this seem less apparent than for data zones in Edinburgh.
- Inverclyde has been chosen as it contains a number of data zones which are known to have been, or be in the process of regeneration.
- The adjacent local authorities of East Lothian and Midlothian are compared, as the majority of data zones in Midlothian have very good coverage of households on the Electoral Register.

Data zones within Edinburgh City

[Map 2](#) shows the number of households on the Electoral Register, as a proportion of the total number of occupied dwellings from Council Tax systems, for data zones in Edinburgh City. This map shows areas of the city where there are low and high coverage of households on the Electoral Register, as well as possible explanations for these patterns.

Suggested explanations for low coverage in parts of Edinburgh could include:

- Areas of regeneration – these tend to be areas which have experienced significant amounts of deprivation in the past, and are now in the process of regeneration, with large numbers of dwellings being demolished and new builds. This often leads to large number of dwellings being vacant

² This does not include data zones in Clackmannanshire, East Renfrewshire, Fife and Highland, as there was not reliable information published on occupied dwellings at data zone level for these local authority areas.

temporarily, and people moving address. Because these areas are undergoing so much change, a time-lag between different data collections can lead to significant differences in the figures, probably on a temporary basis.

[Table 4](#) showed that areas with more deprivation tend to have fewer households included on the Electoral Register.

- Possible new developments and high migration. People may have recently moved into such areas, who may not have registered to vote or may be ineligible to vote (for more information on who is eligible to vote, see [Annex B](#)). There may be a higher proportion of people in these areas who are living in properties rented from private landlords, and this is thought to be a factor in low registration.
- Some areas of the city contain a considerable proportion of all-student households. It could be that households such as these have nobody registered to vote. This is partly due to students migrating more often, and they may also be registered at their home address. There is also likely to be a large proportion of flats and people aged between 18 and 24. People in this age group are often less likely to vote.

Suggested explanations for some areas in Edinburgh with high coverage on the Electoral Register could include:

- Residential areas, with larger proportions of family homes
- A large percentage of people aged 60 or greater
- Low levels of migration or turnover
- Low levels of deprivation.

Data zones within Aberdeen City

[Map 3a](#) is a map of data zones in Aberdeen City which shows the number of households on the Electoral Register, as a proportion of the total number of occupied dwellings. The map shows that the data zones with low coverage of Council Tax occupied dwellings on the Electoral Register are mainly concentrated in the centre of the city (to the right of the map), but there are a few data zones in the suburbs of the city in which coverage is also low.

[Map 3b](#) shows the most common dwelling type within each data zone in Aberdeen City. For data zones in the centre of the city, flats are the most common type of dwelling, with other types (detached, semi-detached, terraced properties) being more common within data zones in the suburbs. More information on dwelling types can be found in [Annex B](#). By comparing [Map 3a](#) and [Map 3b](#), it can be seen that flats are the most common type of dwelling in many of the data zones with low coverage on the Electoral Register. The information in [Figure 4](#) backs up these findings. This is a scatter plot which shows the relationship between the percentage of dwellings that are flats in each data zone in Aberdeen City with the proportion of households on the Electoral Register. There is a fairly strong negative correlation between the two variables – the Pearson's correlation coefficient is -0.838. This means that areas with more flats tend to have a lower proportion of households included on the Electoral Register.

[Figure 5a](#) is an extract of address data from the Electoral Register for an anonymous postcode in Aberdeen City. There are four addresses on this extract, and there is no

information available about specific flats within each address. There are a large number of adults on the Electoral Register at each address. In total, there are 28 adults on the Electoral Register in this postcode, equating to 7 adults per household from the Electoral Register. [Figure 5b](#) is an extract of all dwellings from the Assessors' Portal for the same anonymous postcode in Aberdeen City. There are 32 addresses on the extract. In this extract, we can see that all the dwellings in the postcode are tenement flats, and that all dwellings contain between one and three habitable rooms. The full address given in the Assessors' Portal provides information about individual tenement flats (such as GROUND FLOOR LEFT and SECOND FLOOR RIGHT). This example shows that the low number of households on the Electoral Register is created by the formatting of addresses - separate addresses are being treated as one property on the Electoral Register. In other words, it is not necessarily a result of households being 'missed' from the Electoral Register, but simply that they are classified differently.

Data zones within Inverclyde

[Map 4](#) shows coverage of households on the Electoral Register for data zones in Inverclyde. From [Figure 3](#), we can see that there is a large proportion of data zones in Inverclyde in which coverage of households is low. Examples of such data zones can be found within the urban areas marked "A" and "B" on the map. By looking at trends in the population and in the numbers of dwellings in recent years, it can be seen that some areas are in the process of being regenerated. This may mean that EROs do not receive registration forms from households which are thought to be occupied. There are often challenging social conditions affecting such areas, and this can be reflected in higher levels of deprivation shown in the Scottish Index of Multiple Deprivation (2006). This is likely to result in lower voter engagement. In contrast, for the data zones in the area marked "C" on the map, the number of households on the Electoral Register is much closer to the number of occupied dwellings recorded in Council Tax systems. In these areas, there are low levels of deprivation, a lower proportion of young adults aged between 16 and 24, and very little change in population and the numbers of dwellings in recent years.

A comparison of data zones in Midlothian and East Lothian

[Maps 5a](#) and [5b](#) are maps showing coverage of households on the Electoral Register for data zones in the adjacent local authorities of East Lothian and Midlothian. From [Figure 3](#) we can see that Midlothian contains a larger proportion of data zones in which the coverage of households on the Electoral Register is good, whilst East Lothian contains a greater proportion of data zones with undercounts. In East Lothian, there are undercounts on the Electoral Register, as seen in the areas marked "A" and "B" on [Map 5a](#). Both these areas have experienced considerable increases in the population and in the numbers of dwellings in recent years. On the Midlothian map ([Map 5b](#)), Area "A" highlights some of the data zones which have had good coverage on the Electoral Register. These areas have experienced little change in the numbers of dwellings from 2003 to 2007, and little change in the population. For some of these data zones, there has been a decrease in population, and the proportion of the population aged 16 to 24 is often less than the Scottish average. In addition, relative levels of deprivation (using the Scottish Index of Multiple Deprivation, 2006) are fairly low in these areas.

5. Future steps

GROS plans to compare individual addresses from the Electoral Register and the Assessors' Portal. From there, it will be possible to identify records on the Assessors' Portal which do not appear on the Electoral Register - although we will need to take into account the proportions of dwellings which are vacant in each data zone. This analysis could help provide further explanations for the differences between the different sources.

We are also planning to look at some local authority Corporate Address Gazetteers, and compare these with the Assessors' Portal and the Electoral Register datasets, as well as data on occupied dwellings as recorded from Council Tax systems.

A potential way in which we could try to estimate missing households on the Electoral Register could be achieved by creating a multiple regression model. This could determine the proportion of households that are missing on the Electoral Register by considering some of the other relevant variables which contribute to low registration and include them in the model.

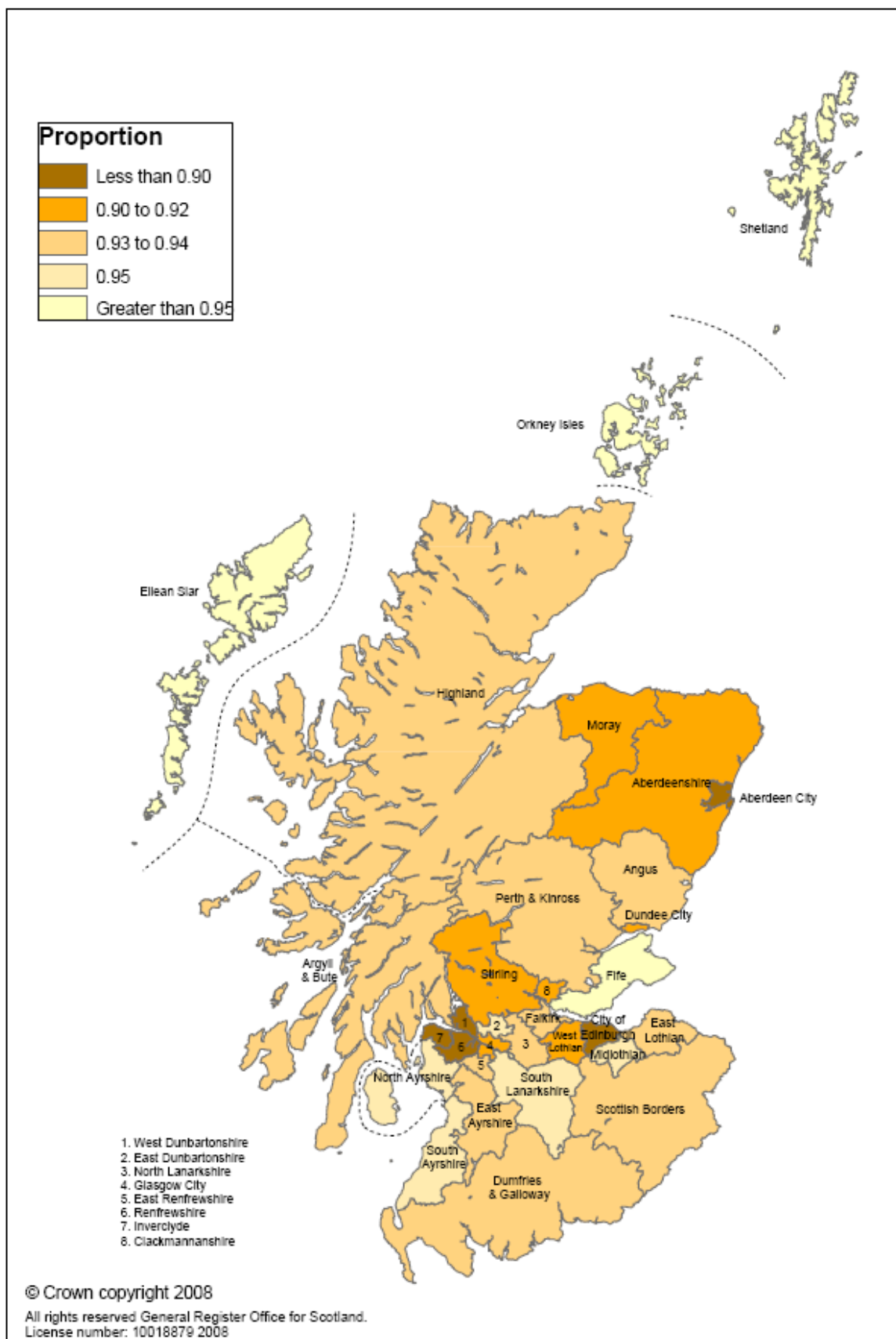
HARG members are asked comment on the analysis presented here, and suggest what further data sources or analysis they recommend GROS should consider, to make this work as useful as possible.

Martin Macfie
GROS: Household estimates and projections branch
January 2009

Annex A. Tables, maps and charts**Local Authority Area Analysis****Table 1. Number of households on the Electoral Register and number of occupied dwellings from Council Tax systems, by local authority area, 2007**

Local Authority Name	Households on Electoral Register	Occupied dwellings	<i>Proportion of Households on Electoral Register to Occupied Dwellings (2007)</i>
Scotland	2,151,044	2,341,265	0.92
Aberdeen City	83,497	105,256	0.79
Aberdeenshire	93,366	100,975	0.92
Angus	46,935	50,188	0.94
Argyll & Bute	38,111	40,848	0.93
Clackmannanshire	20,566	22,384	0.92
Dumfries & Galloway	62,361	67,376	0.93
Dundee City	60,919	67,676	0.90
East Ayrshire	50,326	53,559	0.94
East Dunbartonshire	40,940	42,967	0.95
East Lothian	39,095	41,628	0.94
East Renfrewshire	33,835	36,001	0.94
Edinburgh City	192,752	220,004	0.88
Eilean Siar	11,530	12,045	0.96
Falkirk	63,246	67,984	0.93
Fife	152,313	158,406	0.96
Glasgow City	261,265	286,991	0.91
Highland	93,432	99,361	0.94
Inverclyde	33,142	36,901	0.90
Midlothian	32,267	33,862	0.95
Moray	35,863	39,280	0.91
North Ayrshire	59,089	61,919	0.95
North Lanarkshire	134,013	143,544	0.93
Orkney Islands	8,783	9,053	0.97
Perth & Kinross	58,670	63,388	0.93
Renfrewshire	70,153	79,002	0.89
Scottish Borders	48,154	51,229	0.94
Shetland Islands	9,099	9,504	0.96
South Ayrshire	48,741	51,501	0.95
South Lanarkshire	130,336	137,013	0.95
Stirling	34,115	36,981	0.92
West Dunbartonshire	38,406	42,745	0.90
West Lothian	65,724	71,694	0.92

Map 1. Households on Electoral Register as a proportion of the number of occupied dwellings from Council Tax systems, by local authority area (2007)

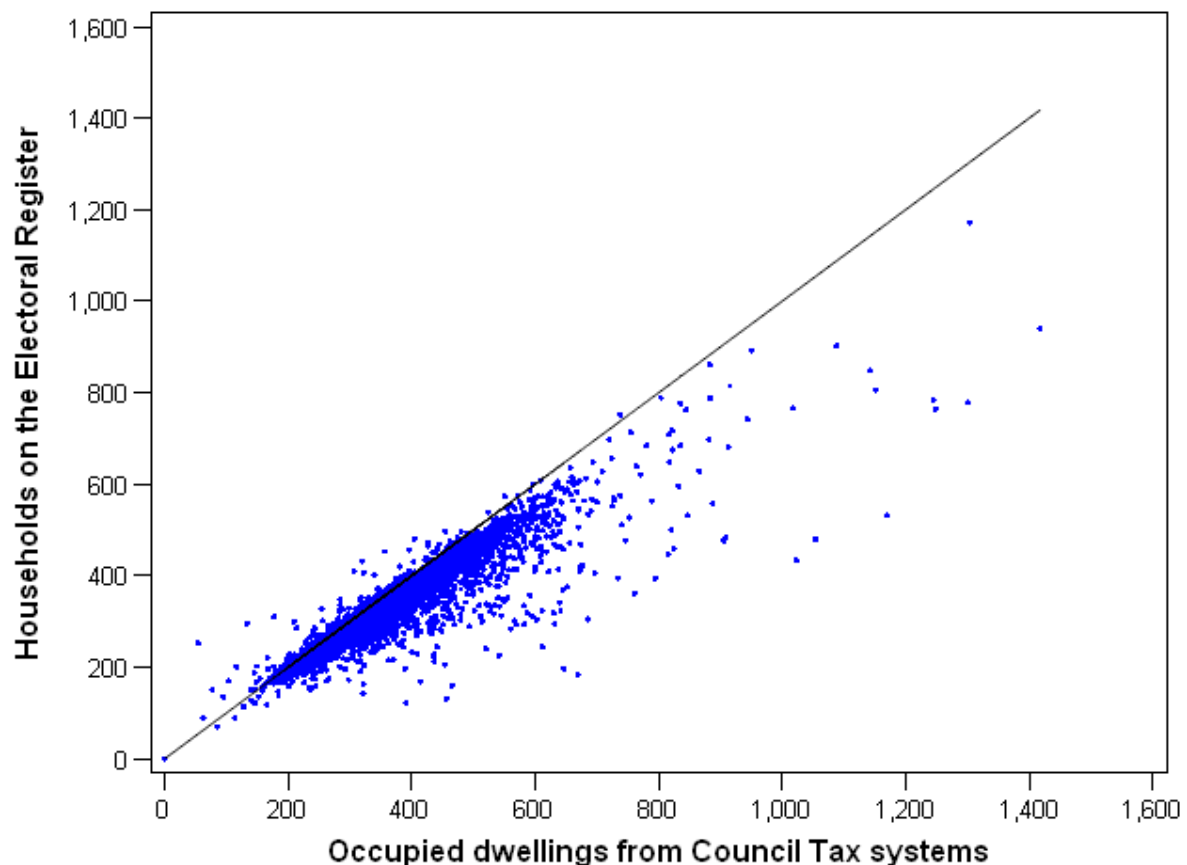


Data zone level analysis**Table 2. Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems. Summary statistics for all data zones in Scotland³**

Minimum value	0.28
5th percentile (5% of data zones are below this value)	0.77
Lower quartile (25% of data zones are below this value)	0.90
Median (50% of data zones are below this value)	0.94
Upper quartile (75% of data zones are below this value)	0.97
95th percentile (95% of data zones are below this value)	1.01
Maximum value	4.71
Number of data zones	5,576

³ This scatter plot does not include data zones in Clackmannanshire, East Renfrewshire, Fife and Highland, as there was not reliable information published on occupied dwellings at data zone level for these local authority areas.

Figure 1. Scatter plot showing the occupied dwellings from Council Tax systems (2007) and the number of households on the Electoral Register (2007) for all data zones in Scotland⁴



The Pearson's Correlation Coefficient is 0.914.

The black line shows what would be expected if the numbers of households on the Electoral Register were the same as the number of occupied dwellings from Council Tax systems. The chart shows that there is an undercount of households on the Electoral Register for over 90 per cent of all data zones. The graph shows a smaller number of data zones which have more households on the Electoral Register. There are exact matches between households on the Electoral Register and Council Tax occupied dwellings for only one per cent of all data zones.

⁴ This scatter plot does not include figures for data zones in Clackmannanshire, East Renfrewshire, Fife and Highland, as there was not reliable information published on occupied dwellings at data zone level for these local authority areas.

Table 3. Proportions of the numbers of households on the Electoral Register to occupied dwellings from Council Tax systems, by Urban-rural classification⁵

	Large urban areas	Other urban areas	Accessible small towns	Remote small towns	Accessible rural areas	Remote rural areas
Occupied dwellings	0.89	0.93	0.94	0.94	0.94	0.95

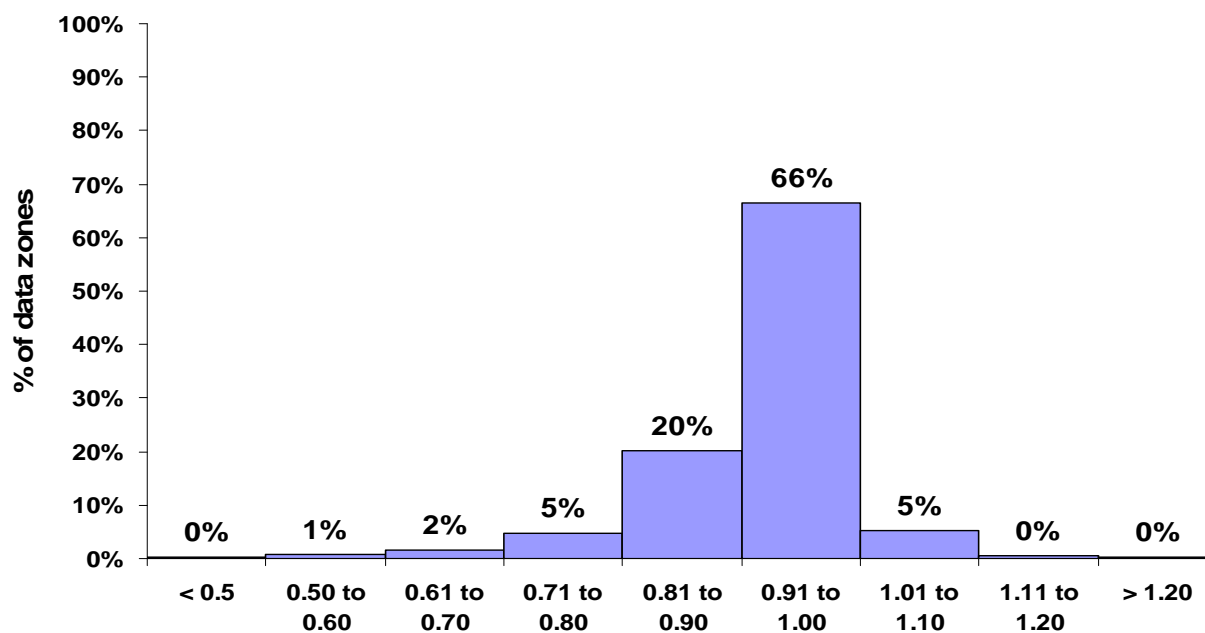
Table 4. Proportions of the numbers of households on the Electoral Register to occupied dwellings from Council Tax systems, by Scottish Index of Multiple Deprivation (SIMD) decile (2006)⁶

	Most deprived							Least deprived		
	1	2	3	4	5	6	7	8	9	10
Occupied dwellings	0.87	0.88	0.89	0.91	0.92	0.93	0.93	0.94	0.95	0.95

⁵ This table does not include figures for data zones in Clackmannanshire, East Renfrewshire, Fife and Highland, as there was not reliable information published on occupied dwellings at data zone level for these local authority areas

⁶ This table does not include figures for data zones in Clackmannanshire, East Renfrewshire, Fife and Highland, as there was not reliable information published on occupied dwellings at data zone level for these local authority areas

Figure 2. Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in Scotland. Distribution of values⁷



⁷ This chart does not include figures for data zones in Clackmannanshire, East Renfrewshire, Fife and Highland, as there was not reliable information published on occupied dwellings at data zone level for these local authority areas.

Figure 3. Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in each local authority area

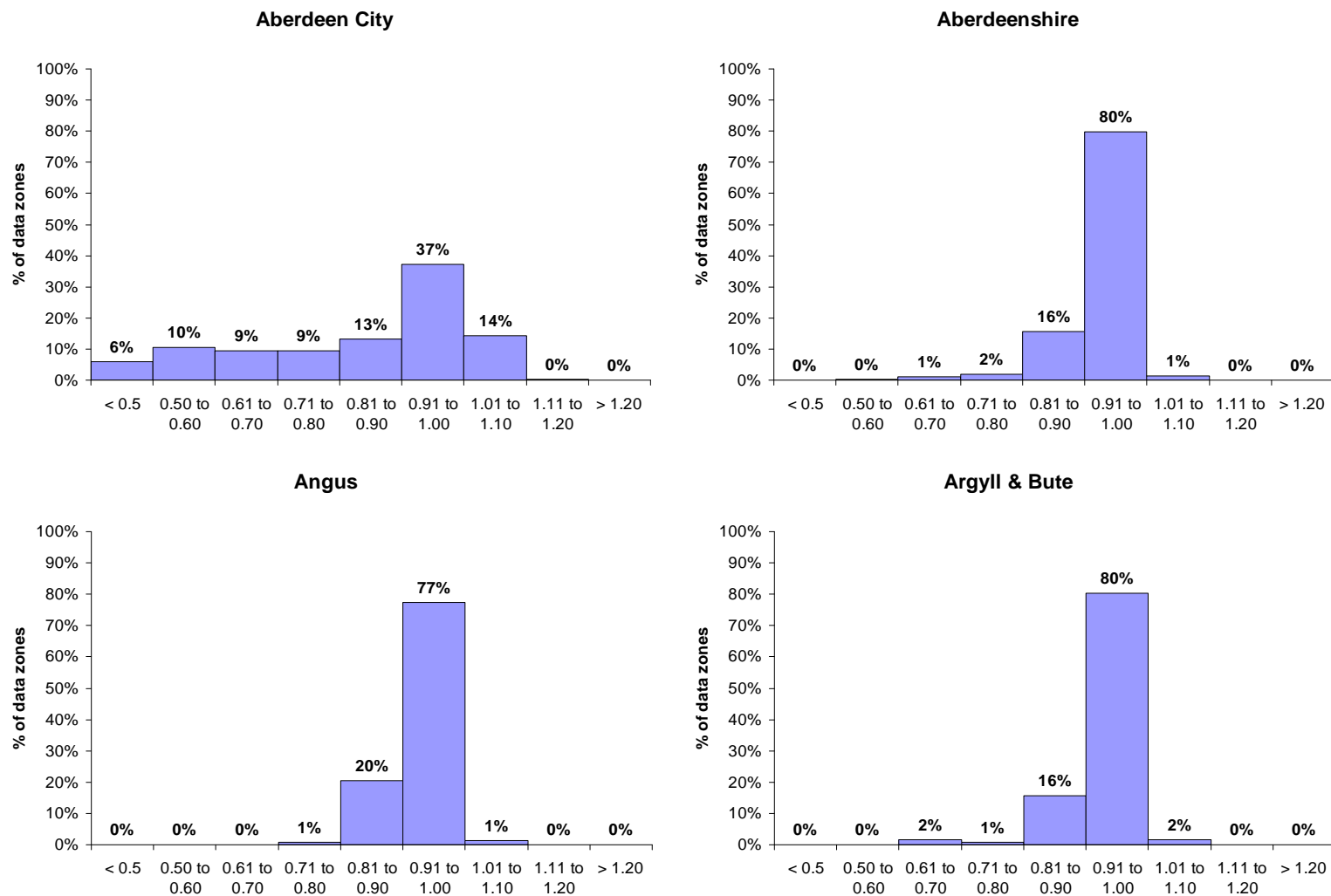


Figure 3 (continued). Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in each local authority area

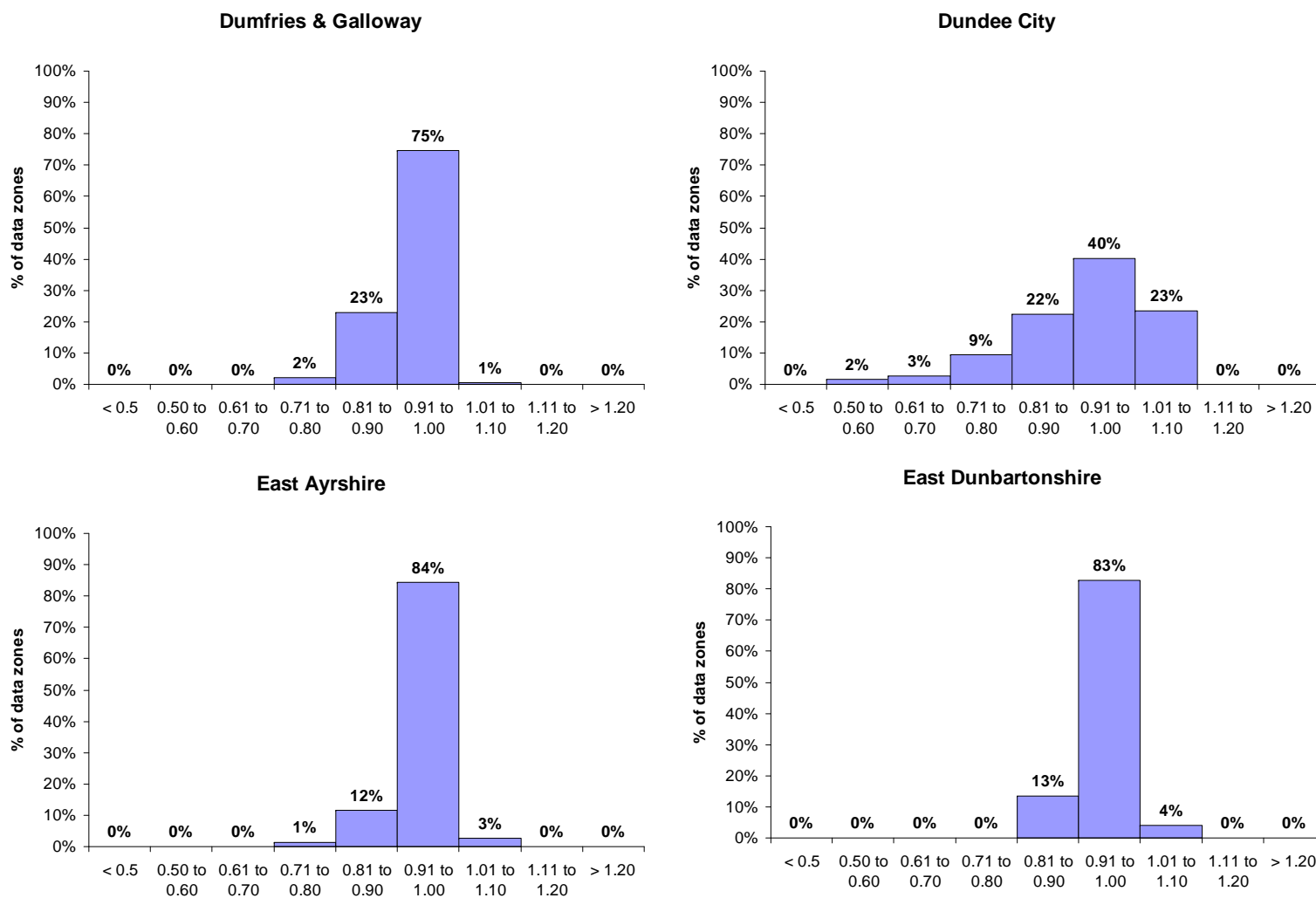


Figure 3 (continued). Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in each local authority area

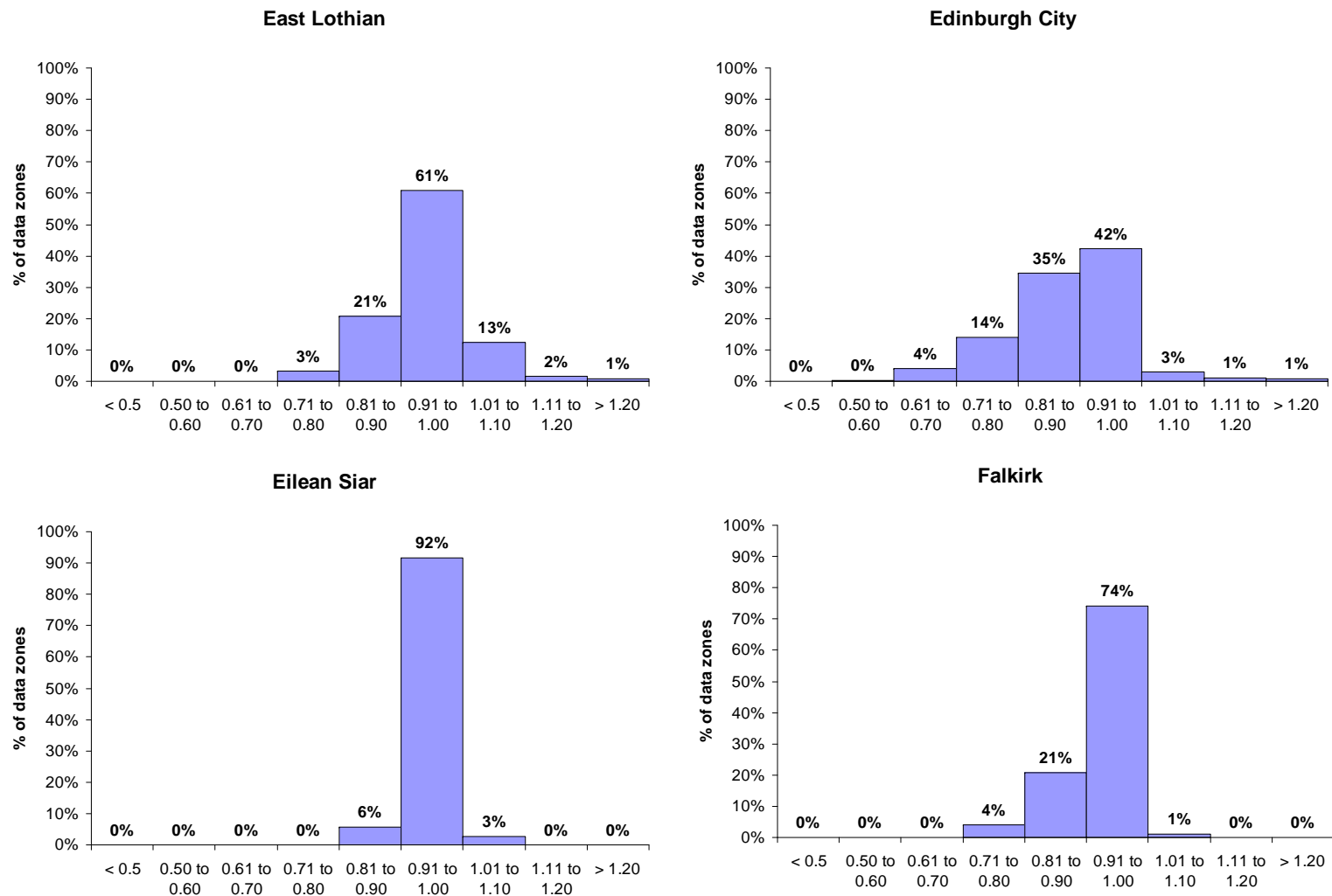


Figure 3 (continued). Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in each local authority area

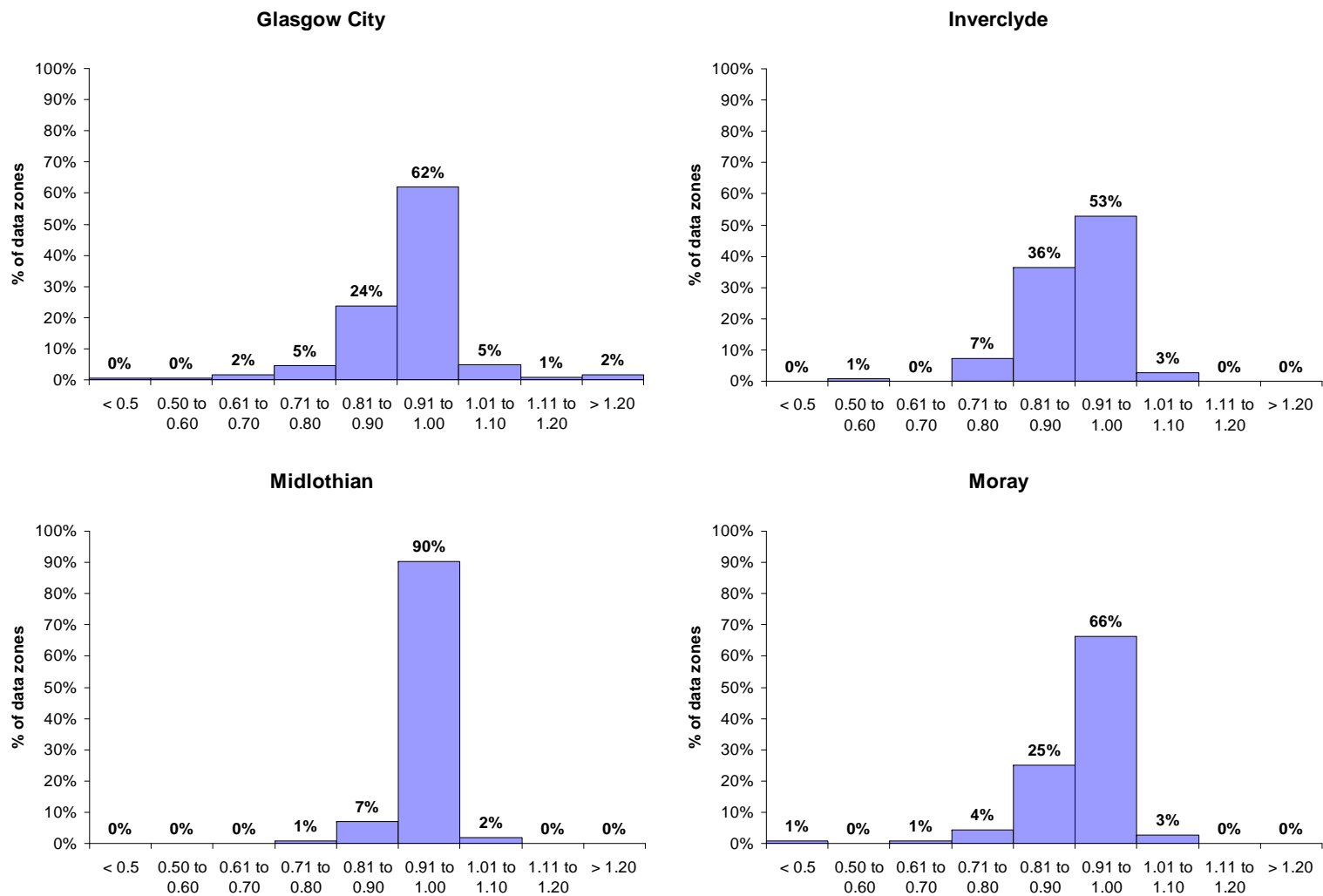


Figure 3 (continued). Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in each local authority area

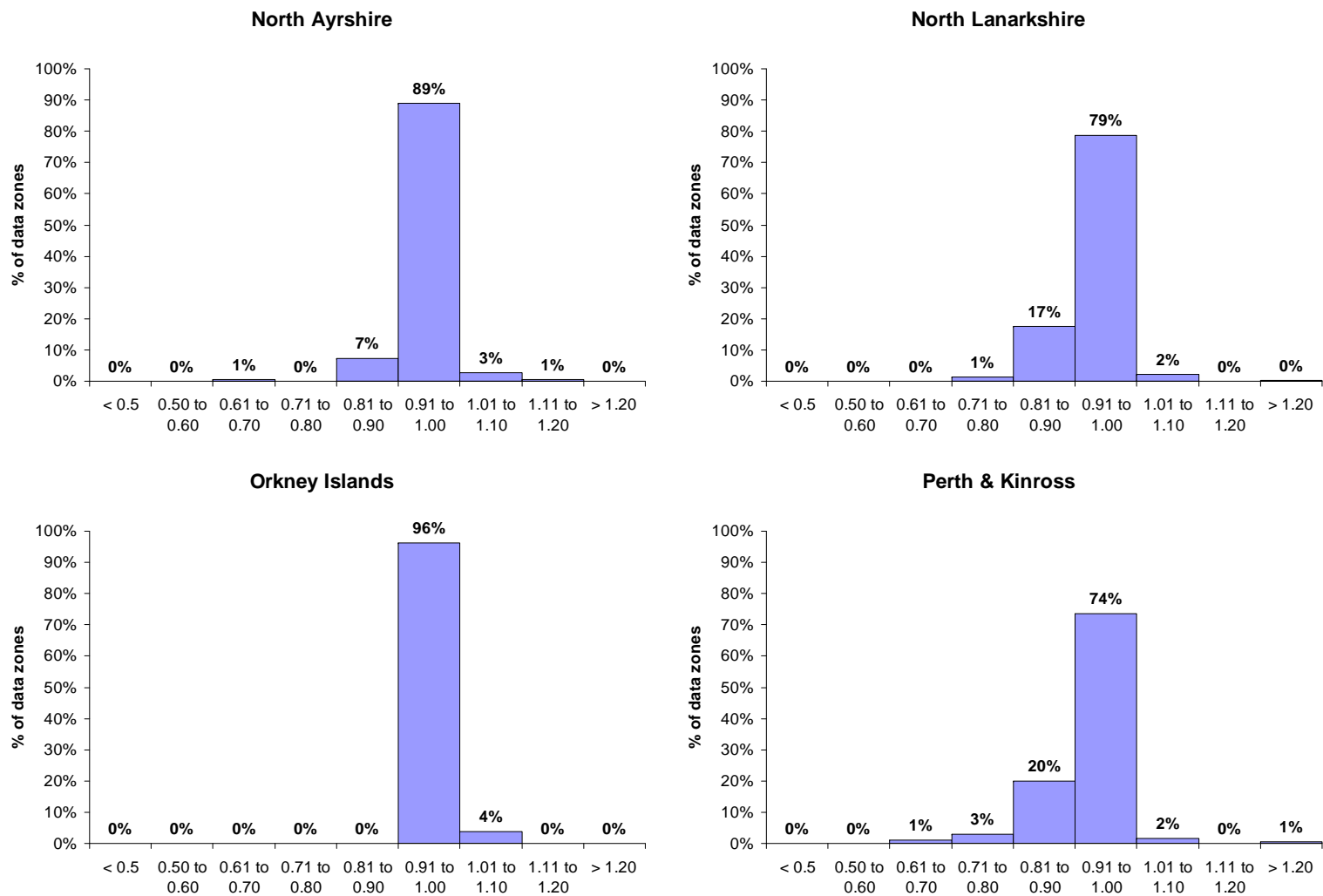


Figure 3 (continued). Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in each local authority area

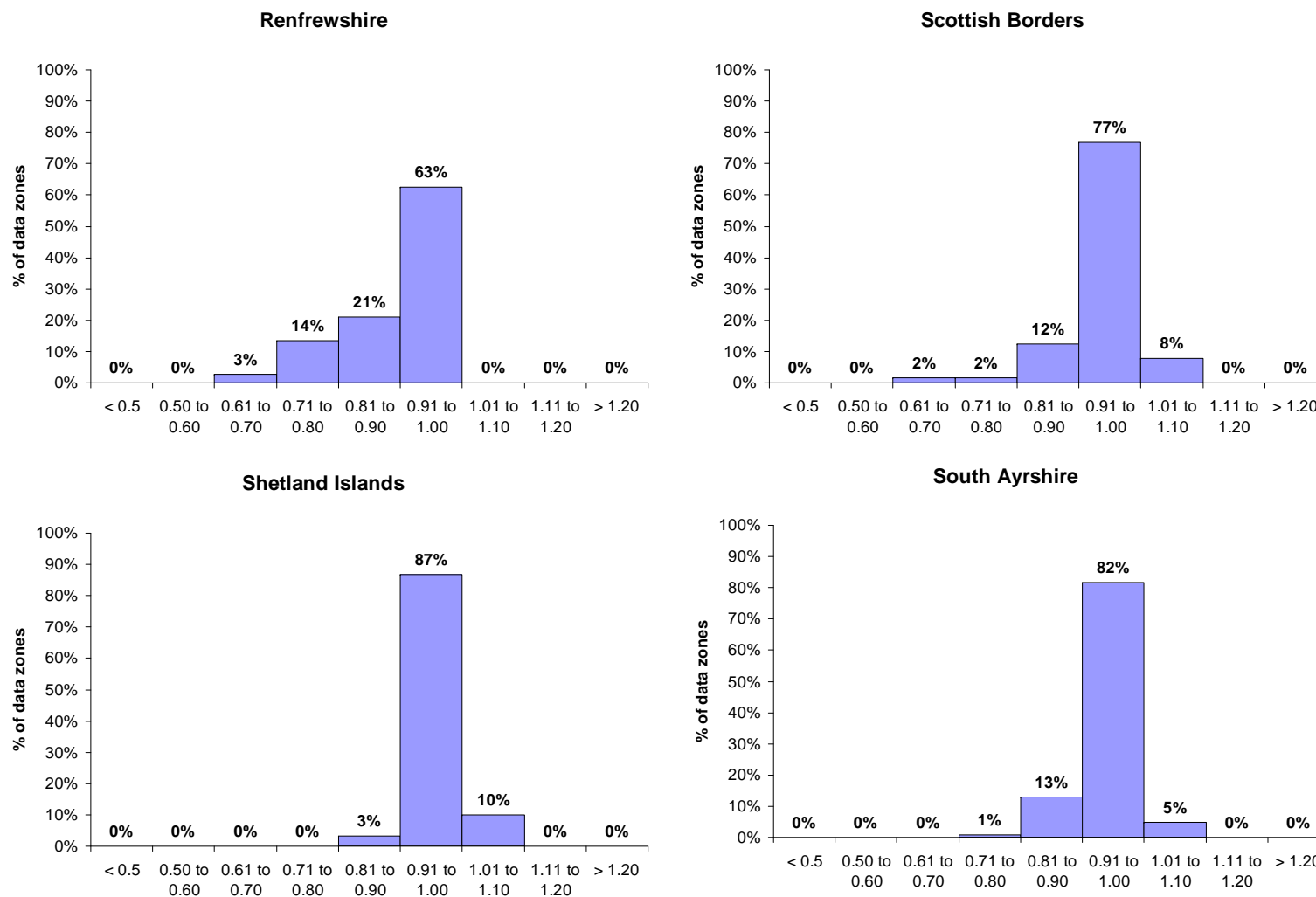
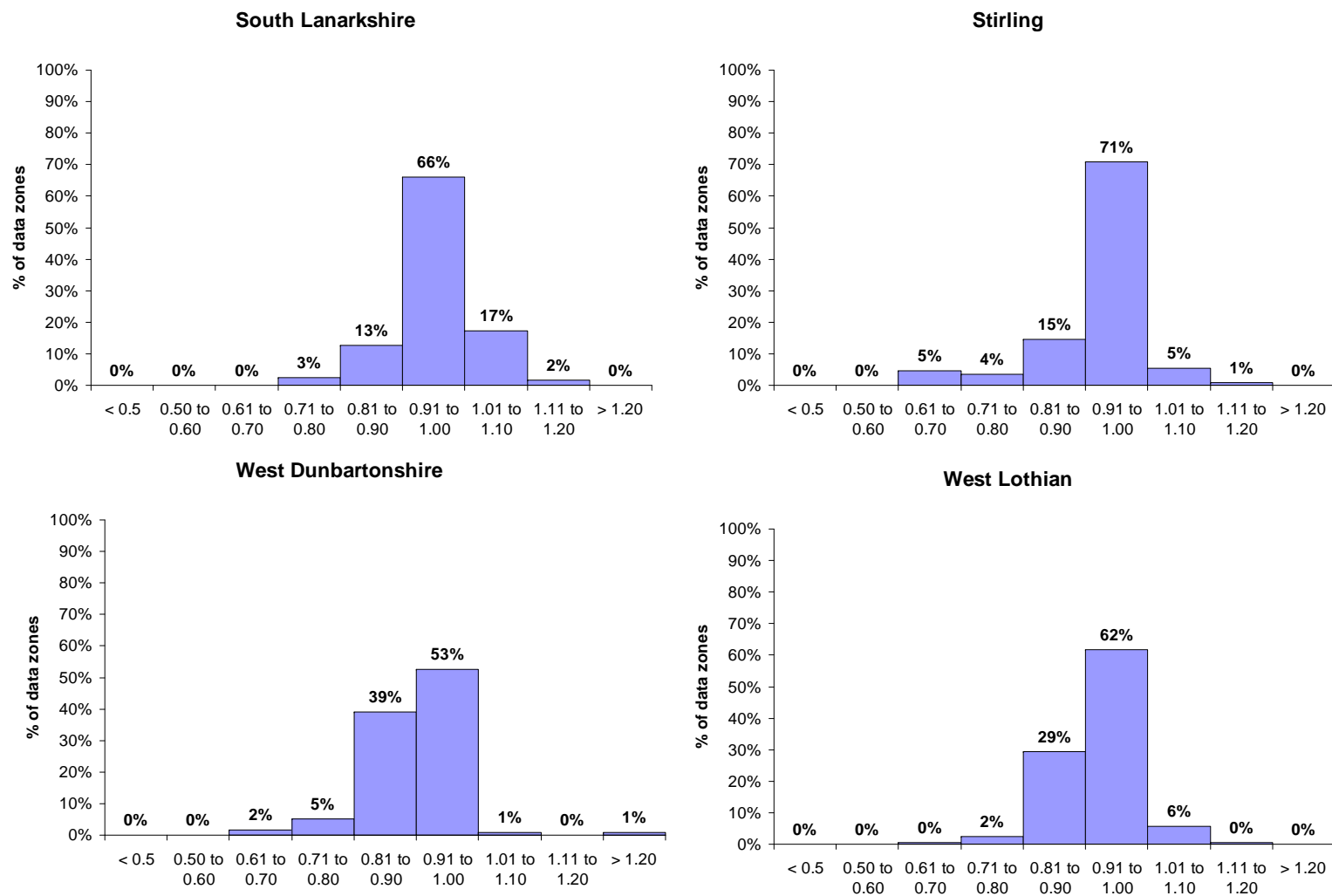
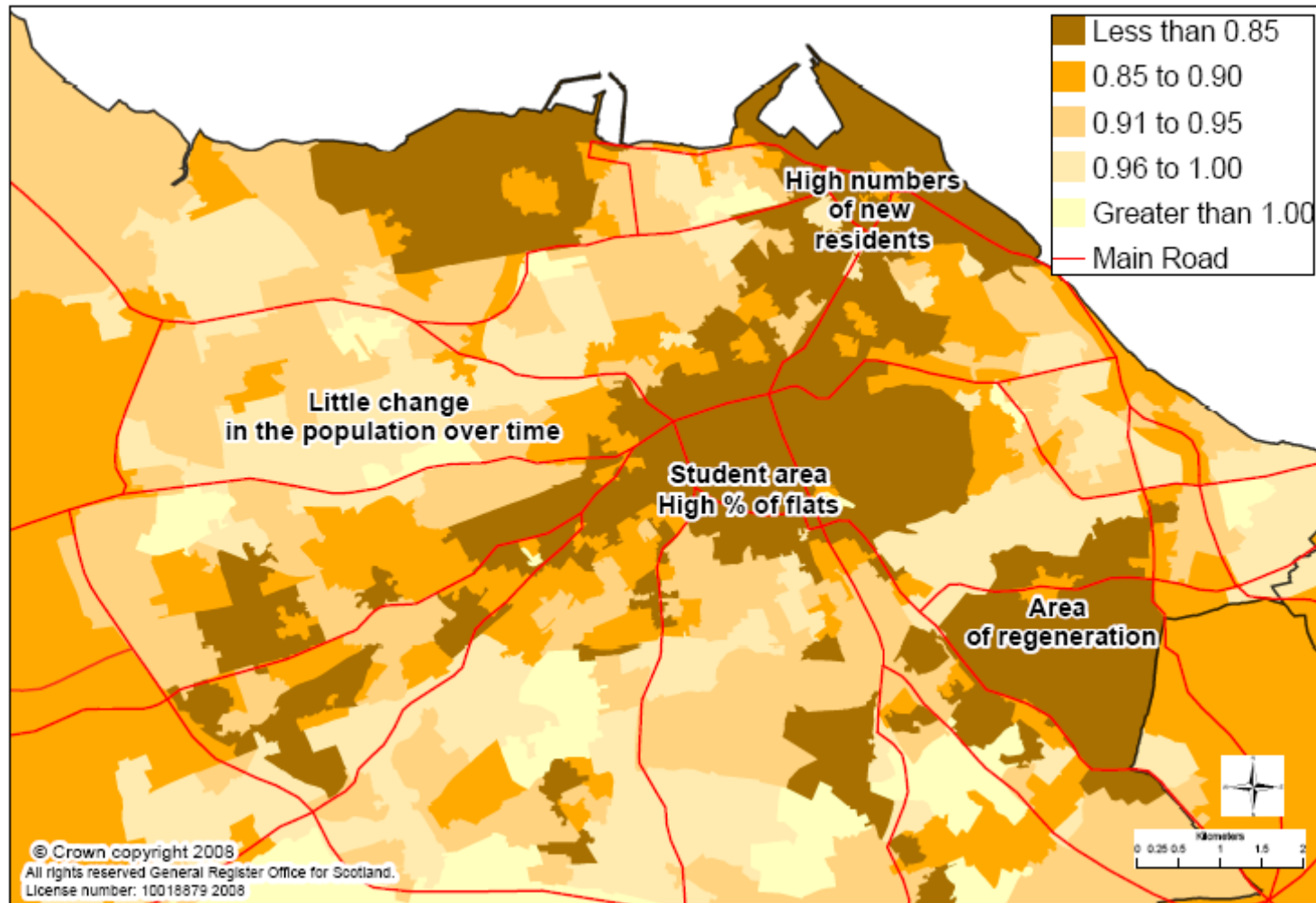


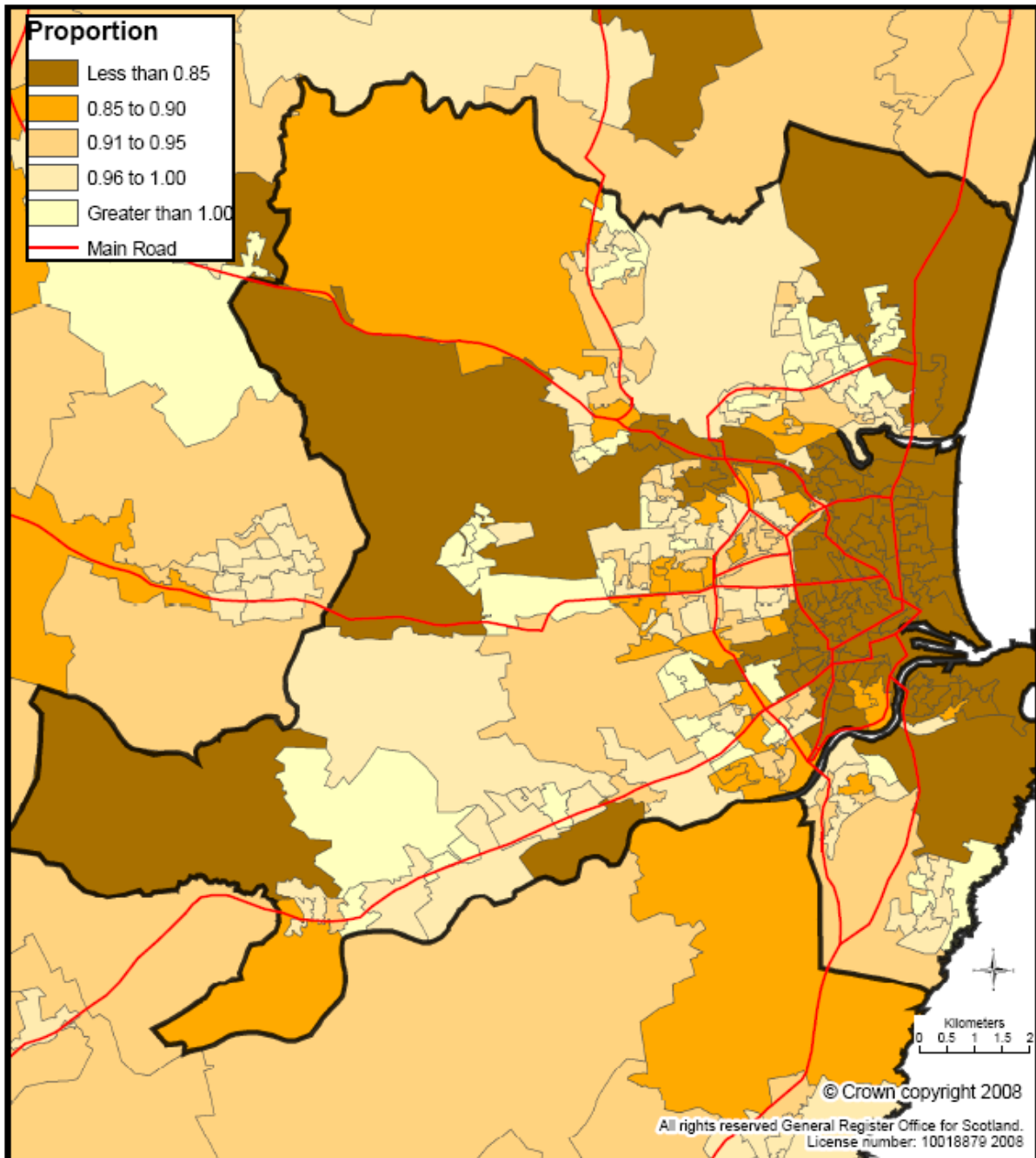
Figure 3 (continued). Households on the Electoral Register, as a proportion of all occupied dwellings from Council Tax systems, for data zones in each local authority area



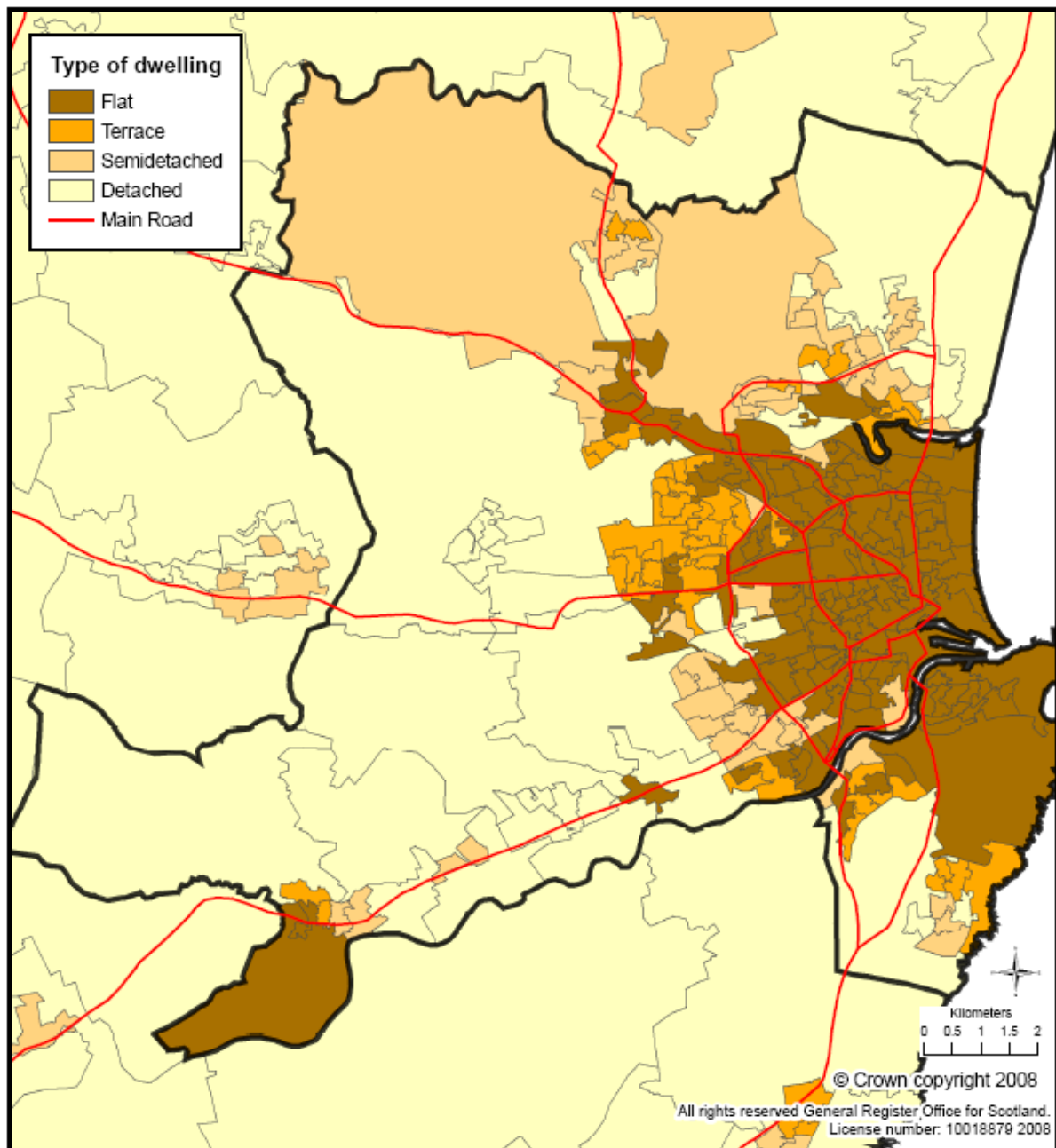
Map 2. Households on the Electoral Register, as a proportion of the total number of occupied dwellings from Council Tax systems, for data zones in Edinburgh City



Map 3a. Households on the Electoral Register, as a proportion of the number of occupied dwellings from Council Tax systems, for data zones in Aberdeen City

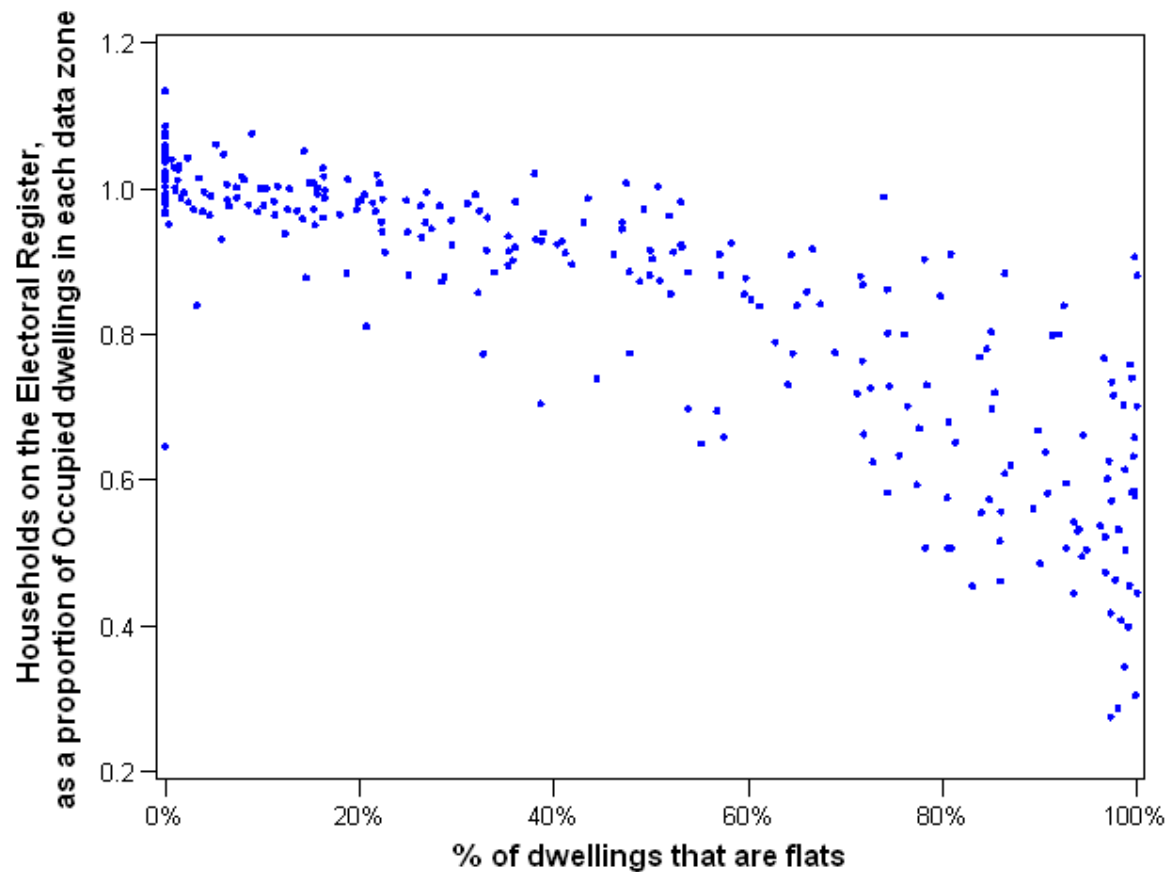


Map 3b. The most common dwelling type in each data zone within Aberdeen City, 2007



Source: General Register Office for Scotland, Dwelling counts, 2007.
This information is available on the Scottish Neighbourhood Statistics website,
www.sns.gov.uk

Figure 4. Scatter plot showing the relationship between the percentage of flats in 2007 and households on the Electoral Register, as a proportion of occupied dwellings from Council Tax systems in each data zone in Aberdeen City



The Pearson's Correlation Coefficient between the two variables is -0.838.

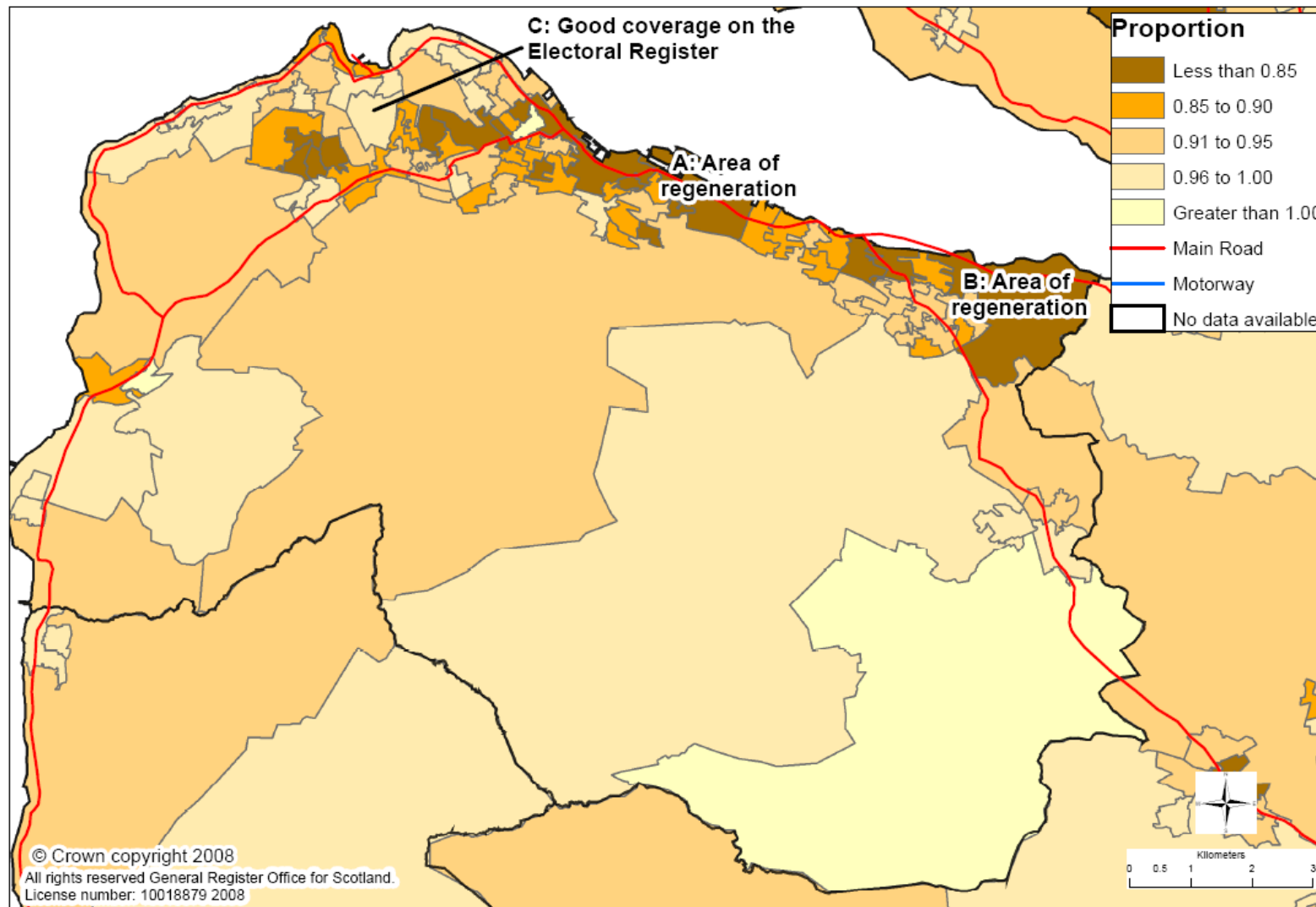
Figure 5a. Extract of address data for an anonymous postcode in Aberdeen City from the Electoral Register

Full Address	Postcode	Number of adults at this address on the Electoral Register
47 ANYROAD AVENUE ABERDEEN	AB951DD	11
49 ANYROAD AVENUE ABERDEEN	AB951DD	3
51 ANYROAD AVENUE ABERDEEN	AB951DD	9
53 ANYROAD AVENUE ABERDEEN	AB951DD	5

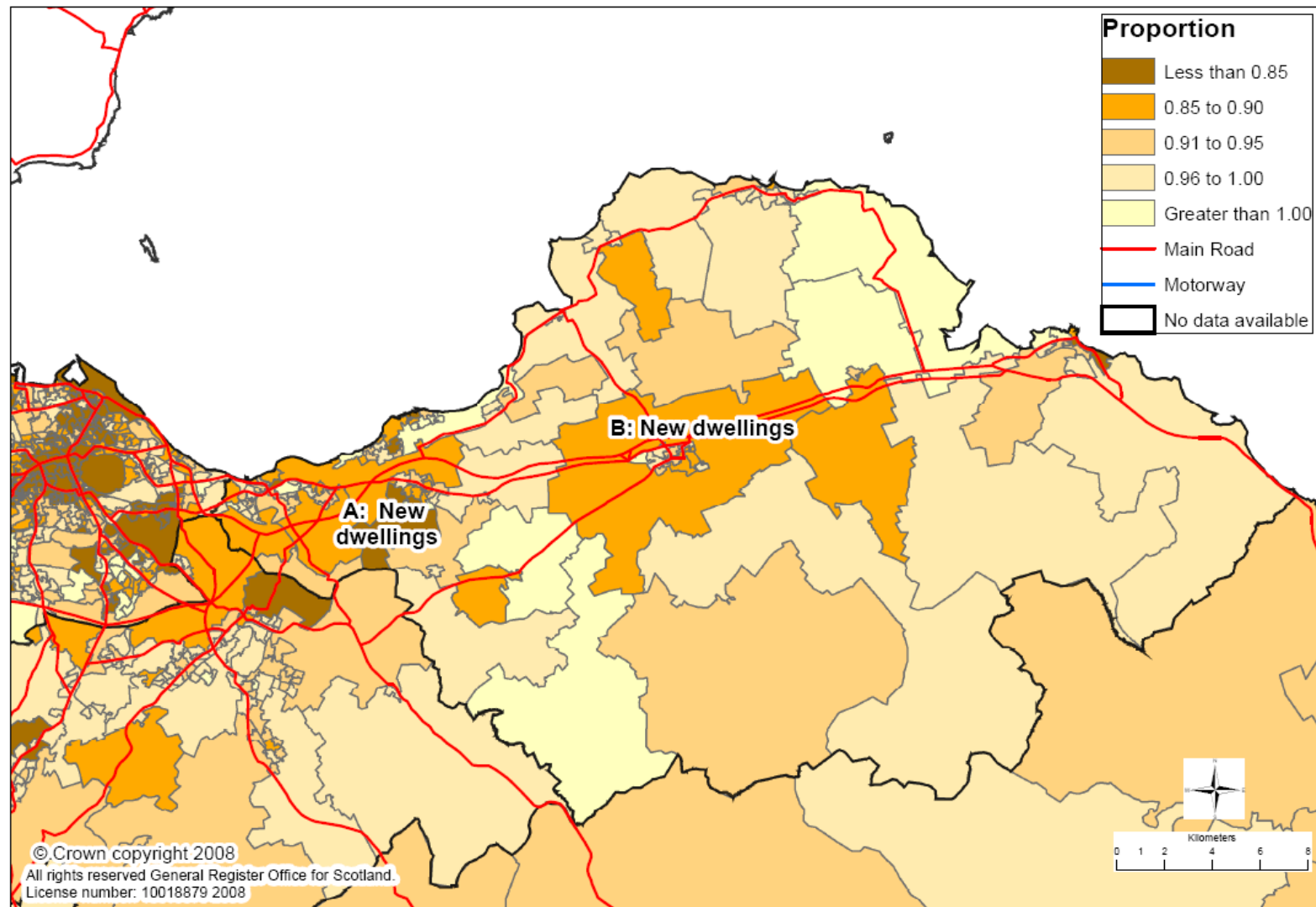
Figure 5b. Extract of address data for an anonymous postcode in Aberdeen City from the Assessors' Portal

Full address	Postcode	Type of dwelling	The number of habitable rooms (usually bedrooms and living rooms)
GROUND FLOOR RIGHT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
ATTIC FLOOR LEFT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
SECOND FLOOR RIGHT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
SECOND FLOOR LEFT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	3
FIRST FLOOR RIGHT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	1
FIRST FLOOR LEFT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
GROUND FLOOR LEFT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
ATTIC FLOOR RIGHT 47 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	3
GROUND FLOOR RIGHT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
SECOND FLOOR LEFT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	1
GROUND FLOOR LEFT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
ATTIC FLOOR RIGHT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
SECOND FLOOR RIGHT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	3
FIRST FLOOR LEFT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
FIRST FLOOR RIGHT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	3
ATTIC FLOOR LEFT 49 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	1
ATTIC FLOOR LEFT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
SECOND FLOOR RIGHT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	1
FIRST FLOOR RIGHT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
GROUND FLOOR LEFT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
SECOND FLOOR LEFT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
ATTIC FLOOR RIGHT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
FIRST FLOOR LEFT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
GROUND FLOOR RIGHT 51 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
ATTIC FLOOR RIGHT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
SECOND FLOOR RIGHT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	1
SECOND FLOOR LEFT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
FIRST FLOOR RIGHT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
FIRST FLOOR LEFT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	3
GROUND FLOOR RIGHT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
GROUND FLOOR LEFT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2
ATTIC FLOOR LEFT 53 ANYROAD AVENUE ABERDEEN	AB951DD	Tenement - FLAT	2

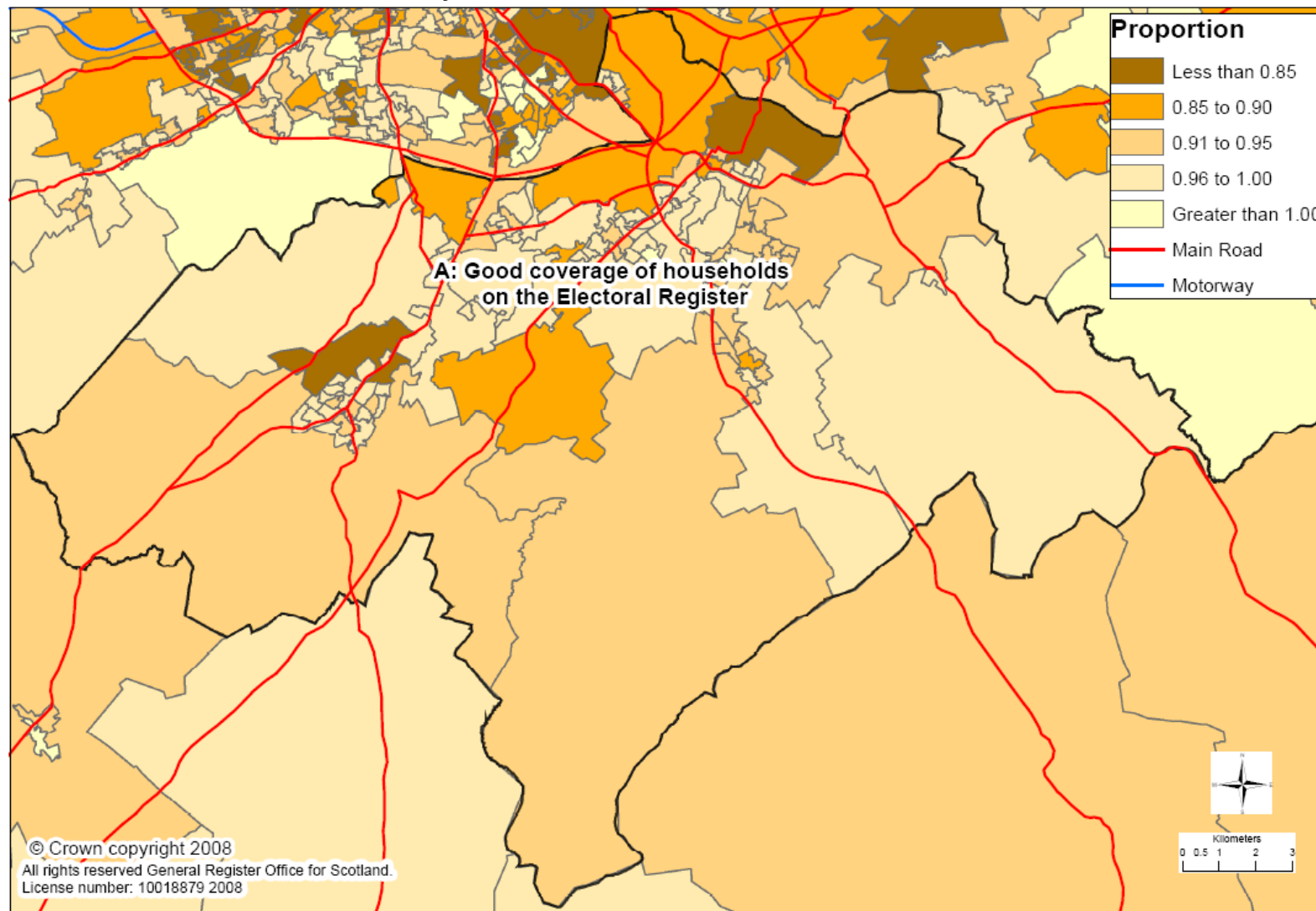
Map 4. Households on the Electoral Register, as a proportion of the number of occupied dwellings from Council Tax systems, for data zones in Inverclyde



Map 5a. Households on the Electoral Register, as a proportion of the number of occupied dwellings from Council Tax systems, for data zones in East Lothian



Map 5b. Households on the Electoral Register, as a proportion of the number of occupied dwellings from Council Tax systems, for data zones in Midlothian



Annex B. Sources, methods and definitions

B1. Characteristics of the Electoral Register dataset

The Electoral Register includes information on all adults registered to vote. It includes the address and postcode of those registered to vote. To carry out the analysis included in this paper, **the records for adults were aggregated by address to show the number of households**, and the number of adults in each household.

There is an annual canvass which takes place in October of each year, but since 2001, registers have been updated each month to reflect changes notified to EROs between canvasses. EROs in each local authority area are responsible for checking and updating these lists. The rolling registration scheme allows electors who move address to be added to the register at that time. There is no longer a need to wait until the next annual canvass.

Note that the Electoral Register only contains details of those who have returned their Registration Forms to EROs. As is to be expected, there are some properties for which no information is returned. These are referred to by some EROs as 'void' properties, and these are not considered in our analyses. In some cases, the EROs will return to void properties in person to try to improve response rates, particularly in areas with low coverage.

The following groups of citizens are eligible to appear on the Electoral Register for UK parliamentary elections:

- British citizens, Commonwealth citizens and citizens of the Irish Republic who are resident in Scotland on the qualifying date, and who will be 18 years or over during the currency of the register
- Registered Service electors. These include members of HM Armed Forces and their spouses, plus Crown servants and British Council employees and their spouses residing abroad.
- Overseas electors. These people are not resident in the United Kingdom, but must have been resident here and included in the electoral register within a period of 15 years of the qualifying date for the current register (or resident here and too young to be registered at the time of residence). They are registered in the same parliamentary constituency as before they went abroad or, if they were too young to register, in the constituency where their parent or guardian was registered.

In addition, the following groups of citizens are eligible to appear on the Electoral Register for Local Government elections and Scottish Parliament elections:

- Peers
- Citizens of the European Union who are resident in Scotland

If you are from a non-Commonwealth or a non-EU country, you are allowed to vote if you successfully have obtained British Citizenship.

Note that in the analysis for this report, we have removed those people who have not reached the age of 18 at the time the snapshot of the data was taken (July 2007).

For more information, see the “Explanatory Notes” for the “GROS: Electoral Statistics - Scotland 1st December 2007” statistical publication:

<http://www.gro-scotland.gov.uk/statistics/publications-and-data/electoral-statistics/explanatory-notes.html>

General guidance is provided to EROs to assist them with ensuring the Electoral Register is complete and accurate in “Managing electoral registration in Great Britain: guidance for Electoral Registration Officers. Part E – Improving completeness and accuracy” -

http://www.electoralcommission.org.uk/_data/assets/electoral_commission_pdf_file/0010/43957/Part-E-Improving-completeness-and-accuracy-final-print-ready.pdf.

This document serves two main purposes:

1. to explain why EROs need to maintain a comprehensive property database in order to be able to canvass potential electors within their registration area
2. to discuss the possible methods used to obtain a list of properties and how to ensure that new residents are properly captured on the register.

B2. Household estimates from Council Tax systems

Each local authority's finance department keeps a record of all dwellings and any discounts or exemptions they are entitled to, for Council Tax billing purposes. If a dwelling is vacant, or is a second home, it is entitled to a Council Tax discount or exemption. This makes it possible to estimate the number of dwellings which are occupied or vacant – **an occupied dwelling is approximately equivalent to a household.**

Local authority area statistics

Summary information on the number of dwellings entitled to different discounts or exemptions is provided by each local authority to the Scottish Government's Statistical Support for Local Government Branch, using the form 'Ctaxbase' (<http://www.scotland.gov.uk/Topics/Statistics/Browse/Local-Government-Finance/DataSupplierArea>). The data which we have analysed was collected in September 2007. The information on the number of dwellings contained in **Table 1** and **Map 1** is based on these figures.

Neighbourhood statistics

The Ctaxbase report, which has been used by GROS to produce household estimates for several years, only provides figures at local authority area level. In order to produce statistics about occupied and vacant dwellings for smaller geographic areas, GROS collected equivalent data at data zone level. Analysis of this data was published for the first time for 2007 data, and dates from September

2007. Information at data zone level is available from the Scottish Neighbourhood Statistics website at www.sns.gov.uk.

In a number of cases, the totals from each data zone do not exactly match the local authority area figures from 'Ctaxbase'. For example, some dwellings on the Council Tax system do not have postcode information. The postcode is used to identify the data zone, so a dwelling without a postcode will not be included in the data zone figures. Where there are differences, local authorities have confirmed that the Ctaxbase figures will be more accurate, so the data zone figures are constrained to the Ctaxbase totals for each local authority area. Data zone figures for the number of occupied dwellings as recorded in Council Tax systems are then compared with households on the Electoral Register at data zone level.

There was some difficulty in extracting full data zone information from the software systems used by Clackmannanshire, East Renfrewshire and Fife, so it was not possible to publish full data for these areas for 2007. Figures are, however, available for the local authority as a whole, and these figures have been included in the tables shown in this report.

For more information and published figures, please see the "Estimates of Households and Dwellings, 2007" publication:
<http://www.gro-scotland.gov.uk/files2/stats/household-estimates/gros-estimates-of-households-and-dwellings-2007-revised.pdf>

B3. Dwelling counts from the Assessors' Portal

GROS also produces counts of dwellings in Scotland, using data obtained from the Scottish Assessors. The Scottish Assessors are responsible for valuing every dwelling in Scotland, for Council Tax purposes. They maintain the web-based Scottish Assessors' Portal, which contains details of every dwelling in Scotland along with its Council Tax band. More information about the Assessors' Portal, the role of the Assessors, and the Council Tax Valuation List can be found at www.saa.gov.uk.

GROS uses data from the Assessors' Portal to publish information on the number of dwellings in each data zone in Scotland, along with information about the Council Tax band, type of property, and number of rooms. This information has been made available on the Scottish Neighbourhood Statistics website at www.sns.gov.uk for several years and as part of our publication, "Estimates of Households and Dwellings in Scotland, 2007" - <http://www.gro-scotland.gov.uk/files2/stats/household-estimates/gros-estimates-of-households-and-dwellings-2007-revised.pdf>. Data from the Assessors' Portal may be of use when undertaking further analysis of the Electoral Register, as it is possible to compare individual address level data between both data sets.

B4. Urban-rural classification

The Scottish Government produces an urban-rural classification, which is based on settlement size as defined by GROS, and accessibility based on drive time analysis. An urban-rural classification is provided for each data zone in Scotland, and this information has been used to analyse the data shown in this publication. There are six urban and rural classifications, as shown below:

Scottish Government urban-rural classification	
1 Large Urban Areas	Settlements of over 125,000 people.
2 Other Urban Areas	Settlements of 10,000 to 125,000 people.
3 Accessible Small Towns	Settlements of between 3,000 and 10,000 people and within 30 minutes drive of a settlement of 10,000 or more.
4 Remote Small Towns	Settlements of between 3,000 and 10,000 people and with a drive time of over 30 minutes to a settlement of 10,000 or more.
5 Accessible Rural	Settlements of less than 3,000 people and within 30 minutes drive of a settlement of 10,000 or more.
6 Remote Rural	Settlements of less than 3,000 people and with a drive time of over 30 minutes to a settlement of 10,000 or more.

Source: Scottish Government Urban Rural classification 2005-06
<http://www.scotland.gov.uk/Publications/2006/07/31114822/0>

B5. Scottish Index of Multiple Deprivation, SIMD

The Scottish Index of Multiple Deprivation (SIMD) is produced by the Scottish Government to identify concentrations of deprivation across Scotland in a consistent way. It is based on 37 indicators in seven domains: Current Income, Employment, Health, Education Skills and Training, Geographic Access to Services, Housing and Crime. An SIMD rank is produced for every data zone in Scotland. Based on this, the SIMD decile is produced, from one (most deprived) to ten (least deprived). This information, from the 2006 SIMD, has been used to analyse the data shown in this publication.

More information about the SIMD is available from the Scottish Government website at <http://www.scotland.gov.uk/Topics/Statistics/SIMD/Overview>.